

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: ARATHOON, R.
CARTER, P.J.
MERCHANT, A.M.
PRESTA, L.G.
 - (ii) TITLE OF INVENTION: METHOD FOR MAKING MULTISPECIFIC ANTIBODIES
HAVING HETEROMULTIMERIC AND COMMON
COMPONENTS
 - (iii) NUMBER OF SEQUENCES: 26
 - (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Genentech, Inc.
 - (B) STREET: 1 DNA Way
 - (C) CITY: South San Francisco
 - (D) STATE: California
 - (E) COUNTRY: USA
 - (F) ZIP: 94080
 - (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: WinPatin (Genentech)
 - (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: Unassigned
 - (B) FILING DATE: 30-Apr-1998
 - (C) CLASSIFICATION:
 - (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Conley, Deirdre L.
 - (B) REGISTRATION NUMBER: 36,487
 - (C) REFERENCE/DOCKET NUMBER: P1099R1
 - (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: 650/225-2066
 - (B) TELEFAX: 650/952-9881
- (2) INFORMATION FOR SEQ ID NO:1:
- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 36 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

CTCTTCCCGA GATGGGGGCA GGGTGCACAC CTGTGG 36

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

CTCTTCCCGA CATGGGGGCA G 21

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GGTCATCTCA CACCGGGATG G 21

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

CTTGGTCATA CATTCACGGG ATGG 24

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CTCTTCCCGA GATGGGGGAC AGGTGTACAC 30

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

GCCGTCGGAA CACAGCACGG G 21

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 39 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

CTGGGAGTCT AGAACGGGAG GCGTGGTACA GTAGTTGTT 39

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 33 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GTCGGAGTCT AGAACGGGAG GACAGGTCTT GTA 33

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GTCGGAGTCT AGACAGGGAG G 21

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

GCCGTCGGAG CTCAGCACGG G 21

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

GCGAGGCGTG GTGCTGTAGT TGTT 24

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

GTTCAGGTGC TGGGCTCGGT GGGCTTGTGT GAGTTTTG 38

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 821 base pairs
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

AACGCGTACG CTCTGAAAAT GCGGACCCG AACCGTTTTC GTGGTAAAGA 50
TCTGGCTGCA CACTACGGCC AGCCGCGGGA ACCTCAGGTG TATACCCTGC 100
CACCGTCTCG AGAAGAAATG ACTAAAAACC AGGTCTCTCT GTGGTGCCTG 150
GTCAAAGGTT TCTATCCGAG CGATATCGCC GTGGAATGGG AAAGCAACGG 200
TCAACCGGAA AACAACTACA AAACCACTCC ACCGGTGCTG GATTCTGATG 250
GCTCCTTCTT TCTGTATTCG AAGCTGACCG TTGACAAAAG CCGTTGGCAG 300
CAAGGCAACG TTTTCAGCTG TTCTGTTATG CACGAGGCCT TGCACAACCA 350
CTACACCCAG AAAAGCCTGT CCCTGTCTCC CGGGAAATAA GCTGAGGCTC 400
CTCTAGAGGT TGAGGTGATT TTATGAAAAA GAATATCGCA TTTCTTCTTG 450
CATCTATGTT CGTTTTTTCT ATTGCTACAA ACGCGTACGC TGGGCAGCCC 500
CGAGAACCAC AGGTGTACAC CCTGCCCCCA TCCCGGAAG AGATGACCAA 550
GAACCAGGTA AGCTTGTA CTGCTGGTCAA AGGCTTCTAT CCCAGCGACA 600
TCGCCGTGGA GTGGGAGAGC AATGGGCAGC CGGAGAACAA CTACAAGACC 650
ACGCCTCCCG TGCTGGA CTCGACGGCTCC TTCTTCCTCT ACAGCTTTCT 700
CACCGTCGAC AAGAGCAGGT GGCAGCAGGG GAACGTCTTC TCATGCTCCG 750
TGATGCATGA GGCTCTGCAC AACCACTACA CGCAGAAGAG CCTCTCCCTG 800
TCTCCGGGTA AATAGGGGCC C 821

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30

Ser Ser Tyr Thr Thr Arg Ser Thr Arg Val Phe Gly Gly Gly Thr
35 40 45

Lys Leu Thr Val Leu
50

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Ser Asn Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu
1 5 10 15

Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
20 25 30

Ser Ser Tyr Thr Thr Arg Ser Thr Arg Val Phe Gly Gly Gly Thr
35 40 45

Lys Leu Thr Val Leu
50

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Ser Asn Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu
1 5 10 15

Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
20 25 30

Ser Ser Tyr Thr Thr Arg Ser Thr Arg Val Phe Gly Gly Gly Thr
35 40 45

Lys Leu Thr Val Leu
50

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45
Lys	Leu	Thr	Val	Leu										
				50										

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45
Lys	Leu	Thr	Val	Leu										
				50										

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Ser	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45
Lys	Leu	Thr	Val	Leu										
				50										

(2) INFORMATION FOR SEQ ID NO:20:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Xaa	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45
Lys	Leu	Thr	Val	Leu										
				50										

(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45

Lys Leu Thr Val Leu
50

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala	Ser	Leu
1				5					10					15
Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys
				20					25					30
Ser	Ser	Tyr	Thr	Thr	Arg	Ser	Thr	Arg	Val	Phe	Gly	Gly	Gly	Thr
				35					40					45
Lys	Leu	Thr	Val	Leu										
				50										

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 62 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Ala	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser
1				5					10					15
Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	Asn	Arg	Leu	Arg	Ala	Glu	Asp
				20					25					30
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Asp	Asn	Gly	Trp	Glu	Leu	Thr
				35					40					45
Asp	Trp	Tyr	Phe	Asp	Leu	Trp	Gly	Arg	Gly	Thr	Met	Val	Thr	Val
				50					55					60
Ser	Ser													
														62

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 62 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Asn	Pro	Ser	Leu	Lys	Ser	Arg	Val	Thr	Ile	Ser	Val	Asp	Thr	Ser	
1				5					10					15	
Lys	Asn	Gln	Phe	Ser	Leu	Lys	Leu	Ser	Ser	Val	Thr	Ala	Ala	Asp	
				20					25					30	
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Val	Asp	Leu	Glu	Asp	Tyr	Gly	
				35					40					45	
Ser	Gly	Ala	Ser	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	
				50					55					60	
Ser	Ser														
															62

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 107 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Thr	Leu	Ser	Ala	Ser	Ile	
1				5					10					15	
Gly	Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Glu	Gly	Ile	Tyr	
				20					25					30	
His	Trp	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	
				35					40					45	
Leu	Leu	Ile	Tyr	Lys	Ala	Ser	Ser	Leu	Ala	Ser	Gly	Ala	Pro	Ser	
				50					55					60	
Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	
				65					70					75	
Ser	Ser	Leu	Gln	Pro	Asp	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	
				80					85					90	

Tyr Ser Asn Tyr Pro Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu
95 100 105

Ile Lys
107

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 261 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Asn	Ala	Tyr	Ala	Leu	Lys	Met	Ala	Asp	Pro	Asn	Arg	Phe	Arg	Gly		15
1				5					10							
Lys	Asp	Leu	Ala	Ala	His	Tyr	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val		30
				20					25							
Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val		45
				35					40							
Ser	Leu	Trp	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala		60
				50					55							
Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr		75
				65					70							
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser		90
				80					85							
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe		105
				95					100							
Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln		120
				110					115							
Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys	Xaa	Met	Lys	Lys	Asn	Ile		135
				125					130							
Ala	Phe	Leu	Leu	Ala	Ser	Met	Phe	Val	Phe	Ser	Ile	Ala	Thr	Asn		150
				140					145							
Ala	Tyr	Ala	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro		165
				155					160							
Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Tyr	Cys		180
				170					175							

Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu
				185					190					195
Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val
				200					205					210
Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Phe	Leu	Thr	Val
				215					220					225
Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val
				230					235					240
Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser
				245					250					255
Leu	Ser	Pro	Gly	Lys	Xaa									
				260	261									